PHASE-CHANGEABLE MEMORY DEVICES HAVING PHASE-CHANGEABLE MATERIAL REGIONS WITH LATERAL CONTACTS AND METHODS OF FABRICATION THEREFOR

Abstract of the Disclosure

A phase-changeable memory device comprises a substrate and an access transistor formed in and/or on the substrate. Laterally spaced apart first and second conductive patterns are disposed on the substrate and have opposing sidewalls. A conductor electrically connects the first conductive region to a source/drain region of the access transistor. A phase-changeable material region is disposed between the first and second conductive patterns and contacts the opposing sidewalls of the first and second conductive patterns. Contact areas between the conductive patterns and the phase-changeable material region are preferably substantially smaller than contact areas at which the conductive patterns contact conductors (e.g., vias) connected thereto, such that high current densities may be developed in the phase-changeable material. Methods of fabricating such devices are also discussed.